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**Criminal History and Future Offending of Juveniles Convicted of the Possession of Child
Pornography**

Abstract

Most child pornography is distributed online. It is estimated that 3 to 15 percent of child pornography consumers are juveniles. The present study analyzed a consecutive sample of 54 male juveniles convicted of the possession of child pornography. Demographic characteristics, criminal history, and subsequent offending were assessed from criminal files and official reports. Juvenile possessors of child pornography were compared to three different groups of juveniles: Juvenile possessors of other illegal pornography ($n=42$), juveniles who committed a sexual contact offense against a child ($n=64$), and juveniles who committed a sexual contact offense against a peer or adult ($n=104$). Juvenile possessors of child pornography were found to have downloaded the illegal material more frequently and over a longer time period than juvenile possessors of other illegal pornography. Furthermore, juvenile possessors of child pornography differed from juveniles who had committed a sexual contact offense in terms of demographics and showed fewer previous and subsequent offending than juveniles who sexually offended against a peer or adult. We conclude that juvenile possessors of child pornography need a specific target intervention focusing on dysfunctional Internet use and sexually deviant arousal.

Keywords: child pornography, online sexual offending, juvenile sexual offending, recidivism

Introduction

Anonymity and the lack of supervision on the Internet offer new possibilities for sexual exploitation. This may be especially relevant in the consumption and distribution of child pornography. Whereas pornography involving consenting adults is legal, child pornography is prohibited and sanctioned by law in most Western countries, including Switzerland, where the current study took place (International Centre for Missing and Exploited Children, 2008). Swiss penal law neither specifies the age which discriminates children from adults in pornographic pictures/videos, nor does it specifically state the exact characteristics of pornography. In general, individuals are charged for the possession of child pornography if they possess material of prepubescent children that is intended to increase sexual arousal (e.g. sexual acts between a prepubescent child and another person or the depiction of the child's genitals in a sexual context). Simple pictures of naked children are not considered as child pornography. In addition to child pornography, the possession of further problematic pornography is sanctioned according to the Swiss Penal Code: The depicting of sexual acts with excrements (involvement of urine and/or feces), the depicting of sexual acts with animals (involving the genitals of a living animal) and the depicting of realistic sexual violence (e.g. rape movies or images of sexual brutality or sexual humiliation).

In the last decade, convictions for the possession of child pornography have increased (Wolak, Finkelhor, & Mitchell, 2011) including among adolescents (Swiss Federal Institute for Statistics, 2009). Adult offenders who offended online (e.g., downloading child pornography) were found to be younger than adult sexual contact offenders (Babchishin, Hanson, & Hermann, 2011). A small but relevant number of child pornography offenses were committed by juveniles (3-15%; Carr, 2004; Finkelhor & Ormrod, 2010; Swiss Federal Institute for Statistics, 2009).

Several factors may put juveniles at risk to commit a child pornography offense. First, a majority of child pornography is distributed online and juveniles are among the most frequent

users of the Internet (Gross, 2004; Guan & Subrahmanyam, 2009). Second, adolescents often know very little about laws governing sexual and pornography offenses (Alexy, Burgess, & Prentky, 2009), but are sexually curious and therefore at risk to seek illegal pornography (Luder et al., 2011; Svedin, Akerman, & Priebe, 2011). Third, the origins of paraphilias often have their roots in adolescence (Abel et al., 1987). Some sexually deviant youths download pornography of prepubescent children for their sexual gratification (Barbaree, 2006).

Despite the fact that 3 to 15 percent of possessors of child pornography are juveniles, only one study has examined forensic and psychosocial characteristics, although results may be limited given the small sample size. Moultrie (2006) analyzed a sample of seven adolescent boys who were referred to a youth service in the United Kingdom because they had downloaded child pornography. These youths were compared to a group of 209 youths with sexual contact offenses. Due to the small sample size, statistical testing was not possible so findings were qualitative in nature. In this study, two of the seven possessors of child pornography had also committed sexual contact offenses and one had committed a non-sexual offense. In contrast, 25% of the sexual contact offender group had committed a non-sexual offense. Trauma, psychosocial adversities, and behavioral and cognitive problems were frequently reported in the sexual contact offender group but were not found in the child pornography possessor group. In conclusion, juvenile child pornography possessors differ, at least qualitatively, from juvenile sexual contact offenders.

Further evidence for the hypothesis that possessors of child pornography are a distinct group of offenders compared to sexual contact offenders might be drawn from studies in adults (e.g. Babchishin, et al., 2011; Blanchard et al., 2007; Webb, Craissati, & Keen, 2007). Adult research reveals significant differences between possessors of child pornography and sexual contact offenders against children: The former were younger, more often Caucasian, more educated, had fewer cognitive distortions, and reported more victim empathy (Babchishin, et al.,

2011). Meta-analyses demonstrate the rate of subsequent sexual offending in convicted child pornography possessors was found to be low (4.6%, $n=2,630$; Seto, Hanson, & Babchishin, 2011) whereas over 10% of sexual contact offenders reoffended with a sexual crime (13.7%, $n=19,267$; Hanson & Morton-Bourgon, 2005). In addition, a remarkable percentage of sexual contact offenders reoffended with a non-sexual crime (non-sexual violent recidivism rate: 14.3%, $n=6,928$; general recidivism rate: 36.2%, $n=12,708$). In contrast, findings on non-sexual recidivism in adult pornography possessors were more ambiguous: Some studies reported low rates of non-sexual recidivism (Endrass et al., 2009) whereas another study with larger follow-up time reported a higher non-sexual recidivism rate of 34% (e.g. Eke & Seto, 2011). Overall, these studies support the assumption that the possession of child pornography alone is not a sufficient risk factor for subsequent sexual contact offending or non-sexual violent offending (Endrass, et al., 2009).

Given the lack of research in adolescent populations and the current discussion of whether the possession of child pornography should be included as a criteria for pedophilia (Seto, 2010; Seto, Cantor, & Blanchard, 2006), studies addressing criminal characteristics of juveniles convicted of the possession of child pornography are warranted. The present study aimed to report on the demographic characteristics, frequency, and time frame of pornography downloads, criminal history, and reoffending after pornography conviction in juvenile possessors of child pornography. In order to address specific characteristics, these youths were compared with (1) a control group of juveniles who have been convicted of the possession of other pornography (e.g. involving excrements, animals, or sexual violence) and (2) juveniles convicted of a sexual contact offense against a child or (3) against a peer or adult.

Based on the findings discussed above, we hypothesize that the juvenile possessors of child pornography significantly differ from contact offenders in terms of demographics, and previous and subsequent offending of a sexual and non-sexual nature.

Methods

Sample

The present study is based on criminal files of a consecutive sample of children and adolescents aged between 10 and 18 years who were convicted of a sexual offense in the Canton of Zurich (Switzerland) between 2003 and 2008. Sexual offenses include the possession or distribution of pornography that is illegal in Switzerland (pornography with children, animals, brutality, and/or excrements) as well as sexual contact offenses such as sexual assault against children, coercive sexual behaviour, rape, exhibitionism, and sexual harassment. Thus, the initial sample included the complete population of juveniles convicted of a sexual offense in the area and period of time. A total number of 317 juvenile sexual offenders had been reported. However, 23 (7.3%) youths were found not guilty by a superior court. Of the 294 remaining cases, 6 (2.0%) were excluded due to unavailable files. Four (1.4%) female offenders were excluded because the number was too small for statistical analyses to compare genders. Twenty (6.8%) juveniles were solely convicted of giving access of legal pornography to minors below the age of 16 years. Because of the unclear sexual motivation behind these offenses, these youths were excluded from the present study. The final sample of 264 male youths was classified into four offender groups including one index group and three comparison groups: (1) Juveniles who were convicted of the possession or distribution of child pornography ($n=54$); (2) Juveniles who did not possess child pornography but who were convicted of the possession or distribution of other pornography that is illegal in Switzerland ($n=42$); (3) Juveniles who committed a sexual contact offense against at least one victim that was both under the age of 12 and at least three years younger than the offender himself ($n=64$) and (4) Juveniles who committed a sexual contact offense against peers or adults but not against a child ($n=104$). The definition of sexual contact offenders against children was chosen in line with previous studies limiting the age of the victim to 12 years (Hart-Kerkhoffs, Doreleijers, Jansen, van Wijk, & Bullens, 2009; Hendriks & Bijleveld, 2004; Hunter,

Figueredo, Malamuth, & Becker, 2003) as well as with the Swiss Penal Code that allows exemption from punishment only if the age difference does not exceed three years. Child pornography offenders may also have downloaded other illegal pornography ($n=21$) and juveniles who committed a sexual contact offense against a child may additionally have committed sexual contact offenses against a peer or an adult ($n=3$). Six of the sexual contact offenders were additionally convicted for the possession of illegal pornography. Because the contact offense occurred before or simultaneous with the possession or distribution of illegal pornography these six youths were included in the contact offenders groups. Within the contact offenders groups, two offenders against a child and 27 offenders against a peer/adult were charged solely for exhibitionism and/or sexual harassment.

In previous publications we analysed juvenile sexual contact offenders (Aebi, Plattner, Steinhausen, & Bessler, 2011; Aebi, Vogt, Plattner, Steinhausen, & Bessler, 2011). In these studies we found that sexual and general recidivism of the sexual contact offenders was 3% and 44.3%, respectively within a mean follow-up of 4.3 years ($SD=2.6$ years). Furthermore, we found some support for the discrimination of sexual contact offenders against children and sexual contact offenders against peers/adults by analysing offender characteristics (e.g. social economic status), victim characteristics (e.g. related victim) and offense characteristics (e.g. use of physical aggression).

The present study was designed in cooperation with the Justice Department of the Canton of Zurich (Switzerland) and was approved by the local medical ethics committee.

Procedure

The present study is based on a retrospective evaluation of forensic, police, and judicial files. Data were coded from the files using a modified version of the Forensic Psychiatric Documentation System (FDPS) adapted for the use with adolescents (Nedopil & Grass, 1988). The FDPS was originally developed to describe and compare offense characteristics, criminal

history, personality, and psychopathology of adult offenders in German speaking countries. We expanded the FDPS for juvenile offenders by taking into account characteristics of the Swiss Juvenile Law and the Swiss Penal Code. Data were extracted by an experienced forensic expert (Ph.D. level) and two graduate students with bachelor degrees in psychology trained for this procedure.

The following information was coded from the modified FDPS: “Age” refers to the offender’s age at the time he committed his first sexual offense against a victim or the time he first downloaded illegal pornography. “Foreign nationality” was assigned to all offenders who were not Swiss citizens. In agreement with the Swiss Health Survey (Swiss Federal Institute for Statistics, 1992) the “Social Economic Status” (SES) was defined according to parents’ educational and professional background (“high” if at least one parent had finished upper secondary education, was self-employed or a manager with extended responsibility, “middle” if at least one parent had completed a vocational training or was employed with at least some managerial responsibility, “low” in all other cases). “Living with parents” was coded if the offender was living with at least one biological or adoptive parent at time of the offense.

The pornography characteristics (begin, end, and number of pictures/videos) were coded directly from the reports of the forensic computer specialists including information on the date the material was saved on a computer or a mobile phone. Psychiatric disorders were coded according to ICD-10 criteria if a forensic assessment report was included in the files.

As an indicator of reliability, inter-rater agreement was assessed for three independent raters with similar training experience using a random subsample of 60 cases. Intraclass correlation coefficients were calculated for “age”, “time frame” and “number of pictures/videos”, Kendall’s W was calculated for SES, and Fleiss’ Kappa (κ) was calculated for “foreign nationality”, “living with parents”, and the presence of a psychiatric disorder. Inter-rater-coefficients were found sufficient to perfect (0.70 to 1.0) for all variables coded from the files.

After the coding of the files was finished, information on criminal history and adolescent and adult recidivism had been drawn from the crime registry of the Canton of Zurich. “Any previous offense” was evident if the person had been convicted because of at least one non-violent or one non-sexual contact offense (e.g. drug use, theft etc.). before he was convicted of the sexual offense A “previous sexual offense” was coded if the offender had committed any sexual contact offense (child abuse, rape). No pornography offense had been registered for any of the juveniles in the four samples analysed before the index sexual offense between 2003 and 2008. A “previous violent offense” was coded if an offender had committed a non-sexual crime causing bodily harm (e.g. violent assault, manslaughter) or a robbery.

For criminal recidivism the mean follow-up period was 2.95 years ($SD=1.45$ years) with a range of 9 months to 6.41 years. The mean follow-up time did not differ for the four groups of juvenile offenders ($F=1.42$, $df=3$, $p=0.24$). The computerized database contains all past and current *transactions from all prosecution institutions and prisons in the Canton of Zurich* including the information on the date of the charges, the type of offense, the date of convictions or penalty orders and the beginning and ending of detentions or incarcerations. The database is limited to data obtained in the Canton of Zurich and therefore does not include all offenses committed nationally. As an additional limitation, the database does not contain sentence or court information. Therefore, we used charges in order to measure reoffending in the present analyses. “Any reoffending”, “sexual reoffending”, and “violent reoffending” were coded similarly to criminal history variables if an offender was charged for such a crime after he committed the sexual contact or pornography offense. Inter-rater reliability was not assessed for criminal history and subsequent offending because these variables were taken directly from the computer data base of the cantonal crime registry.

Statistical Analyses

Independent *t*-tests and general linear models with simple contrasts against the juvenile possessors of child pornography group were used for interval-scaled and chi-square statistics for dichotomous variables using SPSS 14. To avoid alpha-error accumulation by multiple comparisons of demographic, pornographic or criminal characteristics, the Benjamini-Hochberg method was used for adjusting the significance level of 0.05 (Benjamini & Hochberg, 1995).

Results

Descriptive Results

Juvenile possessors of child pornography were between 12.4 and 17.9 years old ($M_{\text{age}}=15.3$, $SD=1.4$ years). Of these youths, 16 (29.6%) not only possessed child pornography but also provided access of these pictures/videos to others. Furthermore, 21 (38.9%) of the juvenile possessors of child pornography had also downloaded some pictures/videos of sexual behaviors including animals, brutality, and/or excrements on their computers or mobile phones. Demographics, quantity of pornographic material possessed, time frame of pornography consumption, criminal history, and reoffending of juvenile possessors of child pornography are shown in Table I. The quantity of illegal pornographic pictures/videos possessed varied between 1 and 400 and the time frame of downloading varied between 1 day and 4.6 years.

The demographic and criminal data of the juvenile possessors of other illicit pornography ($M_{\text{age}}=15.0$, $SD=1.7$ years) and the juvenile contact offenders against a child ($M_{\text{age}}=13.1$, $SD=1.8$ years) and the juvenile contact offenders against a peer or adult ($M_{\text{age}}=14.5$, $SD=1.8$ years) are also presented in Table I.

Comparison of Juvenile Possessors of Child Pornography versus other Illicit Pornography

The results of the statistical comparisons regarding the two groups of juvenile possessors of pornography are reported on the left side of Table I. Juvenile possessors of child pornography

were more often of Swiss origin when compared with juvenile possessors of other illicit pornography. They also had downloaded more illegal pornographic pictures and videos over a longer time period, had fewer previous and later re-convictions, and had committed less previous violent offenses compared to juvenile possessors of other illicit pornography. No significant differences were found with regard to sexual offending. In the sample of juvenile possessors of child pornography, one participant reoffended with sexual harassment of a peer, whereas in the sample of juvenile possessors of other illicit pornography one participant reoffended with sexual child abuse.

Comparison of Juvenile Possessors of Child Pornography with Juvenile Sexual Contact Offenders

On the right side of Table I, the results for the comparison of juvenile possessors of child pornography with sexual contact offenders are shown. The former group was found to be older than both groups of contact offenders at the time of their first sexual offense or first download of illegal pornography. Additionally, juvenile possessors of child pornography were more often of Swiss origin than juvenile sexual contact offenders against peers/adults and were more frequently living with one or both of their parents compared to both groups of sexual contact offenders.

The following significant differences were found between juvenile possessors of child pornography and sexual contact offenders of peers or adults: The former were less frequently of a low socio-economic status, fewer had any previous offenses (including violent offenses) as well as any subsequent offenses (including violent offenses). In those who showed previous or subsequent offending, the number of offenses was significantly lower.

Juvenile possessors of child pornography did not differ from juvenile contact offenders of children regarding the presence of previous and subsequent offenses (including violent offenses).

As the number of subsequent sexual offenses was relatively small in each group, no differences were detected between juvenile possessors of child pornography and contact offenders.

Further Findings

Eight juvenile possessors of child pornography were identified as frequent downloaders because they downloaded images/videos over a time frame of more than 3 months ($M_{\text{time}} = 1.74$, $SD = 1.57$ years) and downloaded more than 50 pictures ($M = 168.5$, $SD = 108.0$) within this period. Four of these juveniles were found to have at least one previous offense, and one had multiple previous offenses. None of these youths had a previous violent offense. In addition, none of the frequent downloaders showed any later offenses in the follow-up period (2.35 to 6.01 years, $M_{\text{time}} = 3.80$, $SD = 1.29$ years).

Nine juvenile possessors of child pornography (16.7%) were mandated by court to undergo a forensic-psychiatric assessment. Frequent downloaders were not more often referred to assessment ($n = 3$) than the remaining juvenile possessors of child pornography ($n = 6$; 37.5% vs. 13.0%). Of the three frequent downloaders who underwent assessment, two were clinically diagnosed with a psychiatric disorder: A 17-year-old was diagnosed with an attention-deficit/hyperactivity disorder (ADHD) and another 17-year-old was diagnosed with a pedophilia. Both of these youths were obligated to attend forensic psychiatric treatment. Within the other six psychiatrically assessed juvenile possessors of child pornography, two were diagnosed with a substance use disorder.

Discussion

The present study aimed to explore demographic characteristics, criminal history, and future offending in juvenile online offenders who were convicted of the possession and/or distribution of child pornography. Additionally, this study aimed to compare juvenile possessors of child pornography with other illegal pornography possessors and with sexual contact

offenders. There were a number of important findings which we summarize hereafter. An important finding of the present study is that juvenile possessors of child pornography were found to be heterogeneous in regard of the time frame and frequency of child pornography consumption. However, on average, they were downloading pornographic materials over a longer time period and more frequently than other problematic pornography possessors.

Confirming our hypothesis, juvenile possessors of child pornography significantly differed from contact offenders regarding their demographic background. Regarding criminal background and reoffending juvenile possessors of child pornography showed less previous and subsequent offenses than sexual contact offenders against peers/adults and were found similar to juvenile sexual contact offenders against children. Given the low number of subsequent crimes, juvenile possessors of child pornography were found not to be at high risk for further sexual and non-sexual offending.

Heterogeneity and Sexual Motivation in Juvenile Possessors of Child Pornography Compared to Possessors of Other Illicit Pornography

Juvenile possessors of child pornography were found to be different from juvenile possessors of other pornography and comparable to adult child pornography offenders showing fewer criminal offenses and being more often of Swiss origin (Endrass, et al., 2009). In contrast, juvenile possessors of other illicit pornography resembled other juvenile delinquents who were frequently found to have a migration background and a criminal history of offending (Bessler et al., 2010).

Furthermore, we found that juvenile possessors of child pornography downloaded pornographic materials more frequently and over a longer time period than those who possessed other illicit pornography. However, the large standard deviation for the time frame and the frequency of downloads indicate that the group of possessors of child pornography is rather heterogeneous. Some may intentionally consume child pornography for feeding their sexual

interests, whereas others might have been triggered by sexual curiosity alone (Sullivan & Beech, 2004). Given the young age of the offenders, it is unclear whether sexual deviant interests in these youths are part of an early manifestation of pedophilia or are caused by a lack of sexual maturity and by uncertainties regarding their sexual orientation. Moultrie (2006) reported in a previous study that five out of seven adolescent child pornography consumers had sexual arousal to children while viewing child pornography. Additionally, self-reports from adult paraphilic sexual offenders show that the onset of deviant sexual orientations often began in adolescence (Abel, et al., 1987). Alternative to the diagnosis of pedophilia, ICD-10 offers the diagnosis of sexual maturation disorder for adolescents (F66) which includes a possible sexual orientation towards prepubescent children and co-occurring feelings of anxiety and depression. In the study of Moultrie (2006), four out of seven online offenders reported problems with their sexual orientation. Thus, a problematic sexual development may be present in some juvenile possessors of child pornography. However, in the present study, we could not examine the presence of deviant sexual arousal and sexual problems in youths since only few juvenile possessors of child pornography have been formally evaluated in a psychiatric setting.

Comparing Juvenile Possessors of Child Pornography to Contact Offenders

Our findings support our hypotheses that juvenile possessors of child pornography differ from juvenile sexual contact offenders with regard to demographic characteristics, as well as previous and subsequent criminal behaviors.

First, according to Institute for Statistics of the Canton of Zurich (2009), 22% of youths in the Canton of Zurich are of foreign nationality. The distribution of Swiss versus foreigners in the contact offenders of children is comparable to the general population (23.6% of foreign nationality), whereas in juvenile possessors of child pornography foreigners are underrepresented (14.2%) and in contact offenders of a peer/adult clearly overrepresented (69.1% of foreign nationality). Similar findings on national background were found in previous studies of juvenile

sexual offenders from the Netherlands (Hart-Kerkhoffs, et al., 2009) and Australia (Chu & Thomas, 2010).

Second, juvenile possessors of child pornography in our sample were older than juvenile contact offenders at the time of their first offense. One explanation for the finding might be that older juveniles may be more likely to have easy access to the Internet, and their Internet consumption might be less likely to be controlled and restricted by adults (Gross, 2004).

Finally, juvenile possessors of child pornography were less likely to have been placed outside their family, which may indicate a less burdened familial context when compared with contact offenders. Our results converge with studies that report histories of familial dysfunction in sexual contact offenders (Letourneau et al., 2009; Ryan, Miyoshi, Metzner, Krugman, & Fryer, 1996). Furthermore, our findings converge with the literature on adult pornography possessors and indicate that juvenile possessors of child pornography seem to be a distinct offender group who differ with regard to social background and nationality from contact offenders (Elkovitch, Viljoen, Scalora, & Ullman, 2008; Wolak, et al., 2011)

Both prior and subsequent offending were found less frequently in juvenile possessors of child pornography compared to contact offenders against peers/adults. Whereas delinquent behaviors and antisocial attitudes play a major role in juveniles who were convicted for sexual contact offenses (Aebi, Vogt, et al., 2011; Butler & Seto, 2002), these factors seem to be less important in juvenile possessors of child pornography. One possible explanation might be different offending patterns, as the privacy and anonymity of the Internet may present an opportunity for covert offending behavior, such as consumption of illegal pornography. In contrast, sexual offenses against a peer may afford further overt criminal energy (Webb, et al., 2007). Another explanation could be that other motives, such as Internet addiction, sexual compulsivity, social withdrawal, and loneliness, might be relevant in juvenile pornography

consumers (Mesch, 2009; Seto, 2010; van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008).

In summary, juvenile possessors of child pornography may be less likely to have a criminal background, migration background, and troubled familial background than contact offenders. As such, they might be in need of more specific interventions compared to those given to sexual contact offenders, which focus on Internet use and sexually deviant arousal. Nevertheless, juvenile possessors of child pornography should still be in the focus of judicial institutions because the consumption of child pornography sustains an illegal pornography market causing victimization of minors.

Juvenile Child Pornography Offenders and Future Offending

The present findings are consistent with previous studies on adult online offenders which described a rather modest rate of future offending and in particular a low rate of subsequent sexual offenses by child pornography offenders (Seto, et al., 2011). Overall, these studies suggest that there is no direct relationship between committing a child pornography offense and the commitment of subsequent sexual crimes. In agreement with these findings, criminological studies from countries in which the possession of child pornography was not illegal for a specific period of time found no increase in sexual contact crimes against children during this time period (Diamond, Jozifkova, & Weiss, 2010; Diamond & Uchiyama, 1999). These findings suggest that the majority of child pornography possessors may be able to control their sexual deviant interests and behaviors. The present study may expand these findings to juvenile online offenders. However, replication of these findings in other juvenile possessors of child pornography populations are warranted. Furthermore, official data may underreport previous and future offenses. For example, 85% of imprisoned adult child pornography offenders were found to have a history of sexual contact offenses by self-report (Bourke & Hernandez, 2009). However, it is

unclear how these findings fit with non-incarcerated populations as well as with juvenile child pornography offenders.

Limitations

To the best of our knowledge, this is the first study that has analyzed juvenile possessors of child pornography. However, due to the limited sample size, the present study remains exploratory and needs validation from further studies. Due to the specific sample characteristics, the results may be limited to male Caucasians living in urban areas. In addition, further limitations are noteworthy. First, all information has been extracted retrospectively based on the available file information. As only one person was authorized to gain juridical information from the government system, we do not have an interrater reliability to report for the variables that were directly coded from the database. Nevertheless the charges and convictions were registered according the Swiss penal code and therefore the data can be assumed to be reliable. Second, diagnoses of the nine juvenile possessors of child pornography who underwent psychiatric evaluations were based on clinical judgments with unclear reliability and validity. Third, the evaluation of reoffending was based on local official data only and did not include national official data or self-reports so this behavior may have been underreported. Lastly, the small subsample of juvenile sexual offenders with sexual re-offending did not allow further statistical comparisons or to validate possible predictors of sexual offending.

Conclusions

Despite these limitations, the present study may stimulate research on youth online offenders. Previous findings on juvenile possessors of child pornography are scarce and further studies in particular of juveniles at risk for pedophilia or other sexual disorders are warranted. According to our results, juvenile possessors of child pornography as a group do not pose a high risk to society in terms of subsequent offending. However, because of the few studies that address the possession of child pornography in juveniles, it is too early to give any

recommendations about how best to manage these youths. Based on our findings and the well-known association of child pornography possession in adults and pedophilia, we suggest creating a distinction between non-frequent and frequent users of juvenile possessors of child pornography in terms of evaluation and intervention. Whereas the first group of non-frequent users needs education on the abusive nature of these pictures and on laws governing sexual offenses in general, the latter group may need more intensive interventions from forensic mental health practitioners. In particular, juvenile possessors of child pornography with frequent, copious, and extended consumption of pornography should be psychiatrically assessed regarding the presence of sexual deviance and sexual developmental problems.

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All authors declare that they have not received any financial support for the present study and they have no conflicting interests to report with the design and the findings of the present study.

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Table I: Demographic characteristics, illegal pornography characteristics, criminal history, and reoffending of juvenile online (JPORN-C, JPORN-O) and contact offenders (JSO-C, JSO-P)

	JPORN -C n=54	JPORN-O n=42	JPORN-C vs. JPORN-O (chi-square or t-test)	JSO-C n=64	JPORN-C vs. JSO-C (chi-square or t-test)	JSO-P n=104	JPORN-C vs. JSO-P (chi-square or t-test)
Demographic characteristics							
Age (years)	15.32 (1.35)	15.04 (1.71)	0.88	13.11 (1.79)	7.63***	14.45 (1.84)	3.38**
Foreign nationality	8 (14.8%)	20 (47.6%)	12.31***	16 (25.0%)	1.88	58 (55.8%)	24.51***
Low SES ¹	22 (47.8%)	21 (63.6%)	1.94	15 (27.3%)	4.56	54 (66.7%)	4.33*
High SES ¹	7 (15.2%)	7 (21.2%)	0.47	14 (25.5%)	1.59	7 (8.6%)	1.29
Living with parents	54 (100%)	42 (100%)	0.00	56 (87.5%)	7.24*	90 (86.5%)	7.98**
Illegal pornography characteristics							
Mean number of pictures/videos	37.5 (69.62)	8.2 (38.43)	2.63*	--		--	
Number of pictures/videos > 10	27 (50%)	1 (3.6%)	25.93***	--		--	
Time frame of downloads (days)	191.1 (335.82)	87.9 (353.31)	1.45	--		--	
Time frame of downloads > 3 months	19 (35.2%)	5 (11.9%)	6.83*	--		--	
Criminal history							
Any previous offense	19 (35.2%)	30 (71.4%)	12.42***	14 (21.9%)	2.58	63 (60.6%)	9.18**
Mean number of previous offenses	0.70 (1.25)	1.98 (2.32)	-3.21**	0.63 (1.97)	0.26	3.63 (8.10)	3.61***
Previous sexual offense	0 (0.0%)	0 (0.0%)	0.00	0 (0.0%)	n / A ²	0 (0.0%)	n / A ²
Mean number of previous sexual offenses	0 (0.0)	0 (0.0)	0.00	0 (0.0)	n / A ²	0 (0.0)	n / A ²
Previous violent offense	3 (5.6%)	11 (26.2%)	8.08**	0 (0.0%)	³	29 (27.9%)	³ **
Mean number of previous violent offenses	0.09 (0.40)	0.38 (0.76)	-2.22*	0.00 (0.0)	1.70	0.81 (2.59)	2.79**
Reoffending							
Any reoffending	9 (16.7%)	16 (38.1%)	5.63	18 (28.1%)	2.18	51 (49.0%)	15.81***
Mean number of offenses	0.26 (0.65)	1.45 (3.69)	-2.07*	0.98 (2.81)	-2.00	3.13 (8.33)	-3.50**
Sexual reoffending	1 (1.9%)	1 (2.4%)	³ .	3 (4.7%)	³	1 (1.0%)	³
Mean number of sexual offenses	0.02 (0.14)	0.02 (0.15)	-0.18	0.08 (0.37)	-1.20	0.01 (0.10)	-0.43
Violent reoffending	1 (1.9%)	3 (7.1%)	³	4 (6.2%)	³	25 (24.0%)	³ ***
Mean number of violent offenses	0.04 (0.27)	0.14 (0.65)	-0.99	0.11 (0.54)	-0.90	0.78 (3.00)	-2.54*

Note: Frequencies (percentages) or means (standard deviations) are reported. JPORN-C = Juveniles convicted of the possession of child pornography, JPORN-O = Juveniles convicted of the possession of other illegal pornography, JSO-C = Juveniles convicted of a sexual offense against a child, JSO-P = Juveniles convicted of a sexual offense against a peer/adult, SES = Socio Economic Status, ¹= results are based on JPORN-C: n=46, JSO-C: n=55, JSO-P: n=81, ²= not calculable, ³=Fisher's Exact Test, significance, * = significance (two sided), p <.05, ** = significance (two sided), p <.01, *** = significance (two sided), p <.001.

